Hoja de trabajo 3
Día 1

1) Primer triángulo

Hipotenusa: 11 cm

Catetos: 8 cm y 6 cm

$11 \, cm = \sqrt{8 \, cm^2 + 6 \, cm^2}$

$11 \, cm = \sqrt{64 \, cm^2 + 36 \, cm^2} \rightarrow 11 \, cm = \sqrt{100 \, cm^2}$

$11 \, cm = 10 \, cm \rightarrow$ No es un triángulo rectángulo.

Segundo triángulo

Hipotenusa: 25 m

Catetos: 24 cm y 7 cm

$25 \, cm = \sqrt{24 \, cm^2 + 7 \, cm^2}$

$25 \, cm = \sqrt{576 \, cm^2 + 49 \, cm}$

$25 \, cm = \sqrt{625 \, cm^2}$

$25 \, cm = 25 \, cm$

$\downarrow$

Sí es un triángulo rectángulo

1) a) 12 cm; 16 cm y 20 cm

Hipotenusa: 20 cm

Catetos: 16 cm y 12 cm

$20\ cm = \sqrt{(16\ cm)^2 + (12\ cm)^2}$

$20\ cm = \sqrt{256\ cm^2 + 144\ cm^2}$

$20\ cm = \sqrt{400\ cm^2}$

$20\ cm = 20\ cm$

Esas medidas son una terna pitagórica

b) 8 m, 15 m y 17 m

Hipotenusa: 17 m

Catetos: 15 m y 8 m

$17\ m = \sqrt{(15\ m)^2 + (8\ m)^2}$

$17\ m = \sqrt{225\ m^2 + 64\ m^2}$

$17\ m = \sqrt{289\ m^2}$

$17\ m = 17\ m$

Esas medidas son una terna pitagórica

$16 \times 16 = 96$
$16 \times 16 = 256$

$12 \times 12 = 24$
$12 \times 12 = 144$

$20 \times 20 = 400$

$15 \times 15 = 75$
$15 \times 15 = 15$
225

$8 \times 8 = 64$

$17 \times 17 = 289$

c) 11 cm, 61 cm y 60 cm

Hipotenusa: 61 cm

Catetos: 60 cm y 11 cm

$61 \text{ cm} = \sqrt{(60 \text{ cm})^2 + (11 \text{ cm})^2}$

$61 \text{ cm} = \sqrt{3600 \text{ cm}^2 + 121 \text{ cm}^2}$

$61 \text{ cm} = \sqrt{3721 \text{ cm}^2}$

$61 \text{ cm} = 61 \text{ cm}$

Esas medidas, son una
terna pitagórica

```
     61
    x61
     61
    366
   3721
```

d) 8 mm, 5 mm y 5 mm

Hipotenusa: 8 mm

Catetos: 5 mm y 5 mm

$8 \text{ mm} = \sqrt{(5 \text{ mm})^2 + (5 \text{ mm})^2}$

$8 \text{ mm} = \sqrt{25 \text{ mm}^2 + 25 \text{ mm}^2}$

$8 \text{ mm} = \sqrt{50 \text{ mm}^2}$ 8×8=64

$8 \text{ mm} = 5\sqrt{2}$

Esas medidas no son
una terna pitagórica.

```
50 | 5
10 | 2
 7
```

3) a)

Datos.

Hipotenusa: X

Catetos: 60 m y 11 m   60 m
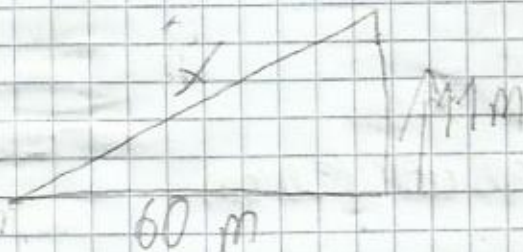
$X = \sqrt{(60m)^2 + (11\,m)^2}$

$X = \sqrt{3600\,m^2 + 121\,m^2}$

$X = \sqrt{3721\,m^2} \implies X = 61\,m$

b) Datos

Datos.

Hipotenusa: 37 cm

Cateto adyacente: 35 cm   37 cm X

Cateto opuesto: X
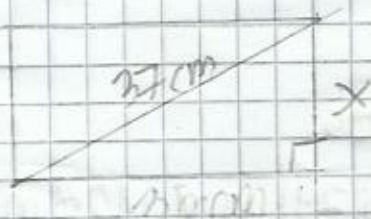
$X = \sqrt{(37\,cm)^2 - (35\,cm)^2}$

$X = \sqrt{1369\,cm^2 - 1225\,cm^2}$

$X = \sqrt{144\,cm^2}$

$X = 12\,cm$

$\begin{array}{r} 37 \\ \times 37 \\ \hline 9 \\ \end{array}$

$\begin{array}{r} 35 \\ \times 35 \\ \hline \end{array}$

1225

1369
1225
144

$\begin{array}{r} 12 \\ \times 12 \\ \hline 24 \\ 12 \\ \hline 144 \end{array}$
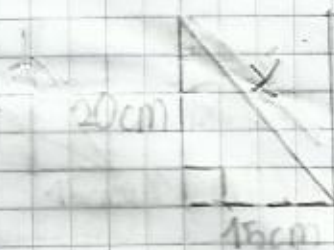
$10 \times 10 = 100$

$11 \times 11 = 121$

c) Datos:

Hipotenusa: x

Catetos: 15 cm y 20 cm

$$x = \sqrt{(20\,cm)^2 + (15\,cm)^2}$$

$$x = \sqrt{400\,cm^2 + 225\,cm^2}$$

$$x = \sqrt{625\,cm^2}$$

$$x = 25\,cm$$

$20 \times 20 = 400$

$30 \times 30 = 900$

$$
\begin{array}{r}
25 \\
\times 25 \\
\hline
125 \\
50 \\
\hline
625
\end{array}
$$

d) Datos:

Catetos: 2,4 m y 10,8 m

Hipotenusa: x

$\frac{12}{5}$ m

$\frac{54}{5}$ m
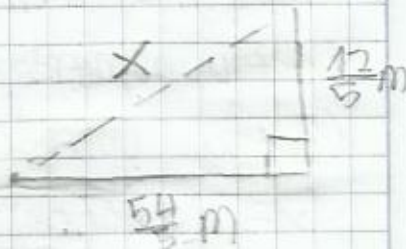
$$x = \sqrt{\left(\frac{12}{5}m\right)^2 + \left(\frac{54}{5}m\right)^2}$$

$$x = \sqrt{\frac{144}{25}m^2 + \frac{2916}{25}m^2}$$

$$x = \sqrt{\frac{3060}{25}m^2}$$

$$x = \sqrt{\frac{612}{5}}m^2 \longrightarrow x = \sqrt{\frac{36 \times 17}{5}}\,m$$

$$x = \frac{6\sqrt{17}}{\sqrt{5}}\,m$$

$2,4 = \frac{24}{10} \rightarrow \frac{12}{5}$

$10,8 = \frac{108}{10} \rightarrow \frac{54}{5}$

$$
\begin{array}{r}
54 \\
\times 54 \\
\hline
216 \\
270 \\
\hline
2916
\end{array}
$$

$$
\begin{array}{l}
612 \,|\, 2 \\
306 \,|\, 2 \\
153 \,|\, 3 \\
51 \,|\, 3 \\
\end{array}
$$

$$
\begin{array}{l}
17 \,|\, 17 \\
1 \\
\end{array}
$$

$$x = \frac{6\sqrt{17}}{\sqrt{5}} \, m \times \frac{\sqrt{5}}{\sqrt{5}}$$

$$x = \frac{6\sqrt{85}}{5} \, m$$

$$\begin{array}{r} 3 \\ 17 \\ \times 5 \\ \hline 85 \end{array}$$